

**AMENDMENTS TO THE CLAIMS**

1. (Previously Presented) A carrier-phase-based relative positioning device, comprising:  
  
at least two antennas mounted on a mobile vehicle or on a mobile vehicle and at a fixed location, one of said antennas being specified as a reference antenna; and  
  
means for estimating an integer ambiguity and a baseline vector from a result of observation of a single phase difference or a double phase difference based on radio waves transmitted by a plurality of position satellites and received by said antennas,  
  
wherein a new integer ambiguity is estimated from the previously estimated baseline vector or integer ambiguity when the number of positioning satellites has changed or when the reference antenna position satellite has been switched.
2. (Previously Presented) The carrier-phase-based relative positioning device according to claim 17, wherein when the number of positioning satellites has increased, the new integer ambiguity estimated only from said baseline vector estimated before the number of positioning satellites has increased.
3. (Previously Presented) The carrier-phase-based relative positioning device according to claim 17, wherein when the number of positioning satellites has decreased, the integer ambiguity after the reduction in the number of positioning satellites is estimated by excluding an estimated value of the integer ambiguity derived from the positioning satellite which has become unobservable.

4. (Previously Presented) The carrier-phase-based relative positioning device according to claim 17, wherein the double phase difference is used for estimating the integer ambiguity and, when the reference position satellite has been switched, the integer ambiguity after the switching of the reference position satellite is estimated by using a difference operation method in response to the reference position satellite switching.

5. (Previously Presented) The carrier-phase-based relative positioning device according to one of claims 2 to 4 or 17, wherein said means for verifying and determining the integer ambiguity determines the integer ambiguity when the reliability of the integer ambiguity has been verified a specific number of times from its successively detected estimated values.

6. (Previously Presented) The carrier-phase-based relative positioning device according to one of claims 2 to 4 or 17, wherein said means for verifying and determining the integer ambiguity determines the integer ambiguity when the same estimated value of the integer ambiguity has been successively detected a specific number of times.

7. (Previously Presented) The carrier-phase-based relative positioning device according to claim 17, wherein said positioning device uses a Kalman filter for estimating a floating ambiguity and the baseline vector from which the integer ambiguity is determined.

8. (Previously Presented) The carrier-phase-based relative positioning device according to claim 17, wherein said means for estimating and determining the integer ambiguity based on a

floating ambiguity uses lambda notation.

9. (Previously Presented) A method to determine a relative position of a device that includes at least two antennas mounted on a mobile vehicle or on a mobile vehicle and at a fixed location, one of said antennas being specified as a reference antenna, the method comprising:

estimating an integer ambiguity and a baseline vector from a result of observation of a single phase difference or a double phase difference based on radio waves transmitted by a plurality of position satellites and received by said antennas,

wherein a new integer ambiguity is estimated from the previously estimated baseline vector or integer ambiguity when the number of positioning satellites has changed or when the reference position satellite has been switched.

10. (Previously Presented) The method of claim 18, wherein when the number of positioning satellites has increased, said estimating step includes estimating the new integer ambiguity only from the baseline vector estimated before the number of positioning satellites has increased.

11. (Previously Presented) The method of claim 18, wherein when the number of positioning satellites has decreased, said estimating step includes estimating the new integer ambiguity by excluding an estimated value of the integer ambiguity derived from the positioning satellite which has become unobservable.

12. (Previously Presented) The method of claim 18, wherein the double phase difference is

used for estimating the integer ambiguity and, when the reference position satellite has been switched, said estimating step includes estimating the integer ambiguity by using a difference operation method in response to the reference position satellite switching.

13. (Currently Amended) The method according to one of claims 10 to 12 or 18, wherein the verifying and determining the integer ambiguity further comprises determining the integer ambiguity when the reliability of the integer ambiguity has been verified a specific number of times from its successively detected estimated values.

14. (Currently Amended) The method according to one of claims 10 to 12 or 18, wherein the verifying and determining the integer ambiguity further comprises determining the integer ambiguity when a same estimated value of the integer ambiguity has been successively detected a specific number of times.

15. (Previously Presented) The method of claim 18, wherein said estimating step includes using a Kalman filter for estimating a floating ambiguity and the baseline vector from which the integer ambiguity is determined.

16. (Previously Presented) The method of claim 18, wherein said estimating step includes using a lambda notation when determining the integer ambiguity based on a floating ambiguity.

17. (Previously Presented) The carrier-phase-based relative positioning device according to

claim 1, further comprising a means for verifying and determining said integer ambiguity.

18. (Previously Presented) The method according to claim 9, further comprising verifying and determining the integer ambiguity.

19. (Previously Presented) The carrier-phase-based relative positioning device according to claim 1, wherein when the number of positioning satellites has increased, the new integer ambiguity is estimated only from said baseline vector estimated before the number of positioning satellites has increased.

20. (Previously Presented) The carrier-phase-based relative positioning device according to claim 1, wherein when the number of positioning satellites has decreased, the integer ambiguity after the reduction in the number of positioning satellites is estimated by excluding an estimated value of the integer ambiguity derived from the positioning satellite which has become unobservable.

21. (Previously Presented) The carrier-phase-based relative positioning device according to claim 1, wherein the double phase difference is used for estimating the integer ambiguity and, when the reference position satellite has been switched, the integer ambiguity after the switching of the reference position satellite is estimated by using a difference operation method in response to the reference position satellite switching.

22. (Previously Presented) The carrier-phase-based relative positioning device according to claim 1, wherein said positioning device uses a Kalman filter for estimating a floating ambiguity and the baseline vector from which the integer ambiguity is determined.

23. (Previously Presented) The carrier-phase-based relative positioning device according to claim 1, wherein said means for estimating and determining the integer ambiguity based on the floating ambiguity uses lambda notation.